

**REMARKS**

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested.

By this Amendment, claims 12 and 20 are amended and claim 14 is canceled without prejudice or disclaimer. Accordingly, claims 12 and 17-22 are pending in this application.

**Objections to the Specification**

The disclosure is objected to because the equation for the parameter  $\lambda$  as stated in paragraph [0042] of U.S. Patent Application Publication No. 2007/0103782 contains a topographical error, specifically  $n_{\max}(\lambda_{28})$  instead of  $n_{\max}(\lambda_{\infty})$ . Applicants respectfully traverse this rejection and submit that the originally filed specification correctly states the equation as:

$$\Delta n(\lambda_0) = n_{\max}(\lambda_0) - n_{\min}(\lambda_0), \delta n_{\min} = n_{\min}(\lambda_0) - n_{\min}(\lambda_{\infty}) \text{ and } \delta n_{\max} = n_{\max}(\lambda_0) - n_{\max}(\lambda_{\infty}).$$

Applicants respectfully submit that errors in the *published application* are beyond the control or responsibility of the Applicants. Withdrawal of the objection to the disclosure is respectfully requested.

**Objections to the Claims**

The Patent and Trademark Office (PTO) objects to claims 12, 14, and 17-22 because of informalities. The objection to claim 14 is rendered moot by the cancelation of claim 14, as presented above.

Applicants amend claim 12 to more clearly recite the relationship of effective index "with respect to" fill factor, as suggested by the Examiner. Claim 12 is further amended to clarify that the term "direction," as first used in the claim to relate effective index to a direction of increasing fill factor in a first portion, is only meaningful when viewed in context the entire claim which recites how the effective index in the second portion increases in the same direction of increasing fill factor. The use of "same

direction" relates to the direction of increasing fill factor in both the first and second portions.

Regarding claims 20-22, Applicants amend claim 20 to depend from claim 12 to obviate the objection thereto.

Accordingly, withdrawal of the objection to the claims is respectfully requested.

### **Claim Rejections under 35 U.S.C. §103(a)**

Claims 12, 14 and 17-22 stand rejected under 35 U.S.C. §103(a) over the article "Diffractive phase elements based on two-dimensional artificial dielectric" by Chen et al. (Optics Letters, Vol. 20, No. 2, pages 121-123). This rejection is respectfully traversed, and as presented below, is believed to be patentable over Chen for the failure of the applied art to suggest all of Applicants' allegedly obvious claim elements.

Applicants respectfully submit that in page 122, first column, third paragraph, Chen appears to only suggest an array of "square pillars or holes," and fails to disclose an optical zone having a first portion wherein the effective index is inversely proportional to fill factor and a second portion wherein the effective index is directly proportional to the fill factor.

Furthermore, the Examiner admits that Chen fails to disclose parameter  $\lambda$ , as recited in claim 12, and alleges that  $\alpha$  is implicitly known. Applicants respectfully disagree.

Nowhere does Chen disclose, teach, or suggest that the variation in phase with the wavelength in a blazed binary diffraction optical element depends to the first order only on a characterization parameter  $\alpha$  of the structure, and that in order to have an achromatic binary diffractive optical element, it is necessary to optimize  $\alpha$ , that depends only on the three recited quantities  $\Delta n(\lambda_0)$ ,  $\delta n_{\min}$ , and  $\delta n_{\max}$ .

Accordingly, since Chen fails to disclose, teach or suggest at least the specific characteristic of parameter  $\alpha$ , the rejection of claim 12 under 35 U.S.C. §103(a) is improper. Applicants respectfully submit, therefore, that independent claim 12 is

patentable over Chen. Claims 17-22 are likewise patentable at least based on their dependency on an allowable base claim, as well as for additional features they recite. Withdrawal of the rejection over Chen is respectfully requested.

**Conclusion**

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited.

Early issuance of a Notice of Allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,  
LOWE HAUPTMAN HAM & BERNER, LLP



Kenneth M. Berner  
Registration No. 37,093

1700 Diagonal Road, Suite 300  
Alexandria, Virginia 22314  
(703) 684-1111  
(703) 518-5499 Facsimile  
Date: January 6, 2009  
KMB/ERM/ser